

# Varian

microwave equipment products

## Varian Medium Power Amplifier 6900G Series

### Features

- 1.0 to 18 GHz
- 100 and 200 Watt Models
- Octave Bandwidths or Greater
- Optional GPIB Control



### Description

For test and measurement applications that require RF power of 100 or 200 watts, Varian offers the 6900G Series power amplifier. For testing on antenna ranges, in EMC chambers or on a test bench. Varian provides equipment built with quality and reliability that you can trust.

The 6900G series amplifiers are constructed with proven reliable metal-ceramic traveling wave tubes (TWTs) built to provide dependable service for a wide range of applications. The power supply for the 6900G series is a reliable, high efficiency switching design. Combined with Varian TWTs, the 6900G series amplifier provides the industry standard for dependability.

The 6900G series TWT amplifier has a full line of standardized options including remote control input isolators and output VSWR protection. For ATE applications, IEEE 488 bus controllable amplifiers are available. More than a thousand Varian 6900G series amplifiers are used throughout the world, performing over a wide range of specifications, in a variety of environmental and operating conditions.

Varian 6900G series TWT amplifiers are manufactured with components that match the high quality of all Varian amplifiers and are backed by the worldwide Varian product support network that includes a 24-hour hot-line. Quality, reliability and product support are integral parts of your Varian power amplifier.

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## Selection Guide

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Model #	Power (Watts)	Freq. (GHz)	Gain (dB)
VZU-6992G5	100	12.4-18	37
VZM-6992G6	100	9-17	37
VZL-6943G5	200	1-2	30
VZS-6953G5	200	2-4	37
VZC-6963G5	200	4-8	37
VZX-6983G5	200	8-12.4	35
VZU-6993G7	200	12.4-18	35
VZM-6993G7	200	8-18	35

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## Specifications

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<b>Frequency Range:</b>	1 to 18 GHz (see selection guide)
<b>Rated Output Power:</b>	100 or 200 Watts CW. Saturated output power generally exceeds rated power by 1.5 to 3 db near band center. The insertion loss of options added at the output will reduce power delivered to the output connector.  30 to 37 dB at rated power (see selection guide). Typical gain is 4 dB above spec at band edges and 10 dB above spec at band center. Gain is reduced by all microwave options (see option L for higher gain).
<b>Gain Stability:</b>	±0.25 dB/day at constant drive and temperature.
<b>Gain Variation:</b>	10 dB peak-to-peak typical across all bands except 8-18 GHz where it is 15 dB typical.
<b>Input/Output impedance:</b>	50 Ohms nominal
<b>VSWR:</b>	Input: 2.0:1 typical Output: 2.0:1 typical Load: 1.5:1 max for full spec. Compliance; 2.0:1 max for no damage without option M. Any value with option M
<b>Noise &amp; Spurious:</b>	-50 dBc typical excluding harmonics.
<b>Residual AM:</b>	-40 dBc up to 10 KHz -20 (1+ log f) dBc, 10 to 500 KHz -80 dBc above 500 KHz
<b>Residual FM:</b>	Less than 4 KHz peak-to-peak for 0 to 5 MHz from carrier.
<b>AM/PM Conversion:</b>	2.5-degrees/dB max at 6 dB below rated output power.
<b>Noise figure:</b>	40 dB max, 20 dB with option L
<b>Harmonic Content:</b>	-3dBc typical at lower band edge decreasing to -15 dBc typical at upper band edge.

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## Meters, Monitors, Controls & Indicators

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**Meters:** Helix Current  
Filament Elapsed Time (Option H)

**Monitors:** RF Output Sample (Option E)

**Controls:** Mains Power ON/OFF  
High Voltage ON/OFF – Fault Reset  
Local/Remote (Option G)  
RF Attenuator (Option B)

**Indicators:**

<ul style="list-style-type: none"> <li>• Mains Power ON</li> <li>• Filament Time Delay</li> <li>• Standby</li> <li>• High Voltage On</li> <li>• Summary Fault</li> <li>• Cover Interlock Fault</li> </ul>	<ul style="list-style-type: none"> <li>• Helix Current Fault</li> <li>• TWT Over-temperature</li> <li>• External Interlock Fault (option G)</li> <li>• Remote Control (option G)</li> <li>• Reflected Power Fault (option M)</li> <li>• Power Supply Fault</li> </ul>
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## Mechanical & Environmental

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**Ambient Temperature:** 0 to 50°C

**Relative Humidity:** to 95% non Condensing

**Altitude:** to 10,000 feet max. Derate temperature 2°C/1,000 feet above 4,000 feet.

**Shock & Vibration:** As normally encountered in a protected engineering laboratory environment.

**Cooling:** Forced air with integral blower, air intake and exhaust in rear.

**RF Connectors:** Type N(female), on rear panel (front panel w/Option j)

Frequency (GHz)	Type
1-2	N (female)
2-4	N (female)
4-8	N (female)
8-12.4	UG-39/U (WR-90)
12.4-18	UG-419/U (WR-62)
8-18	MIL-F-39000/3-74 (WRD-750)

**Prime Power:** 115 Vac ±10%, 47-63Hz, single phase  
230 Vac (option K)

**Power Consumption:** 1900 Watts for 100W TWT models  
2400 Watts for 200W TWT models

**Dimensions:** 12.25”H x 19”W x 24”D

**Weight:** 195 Lbs./ 89 Kg.